Mt. Paran Rd / Powers Ferry Rd Intersection Improvement

March 21, 2017

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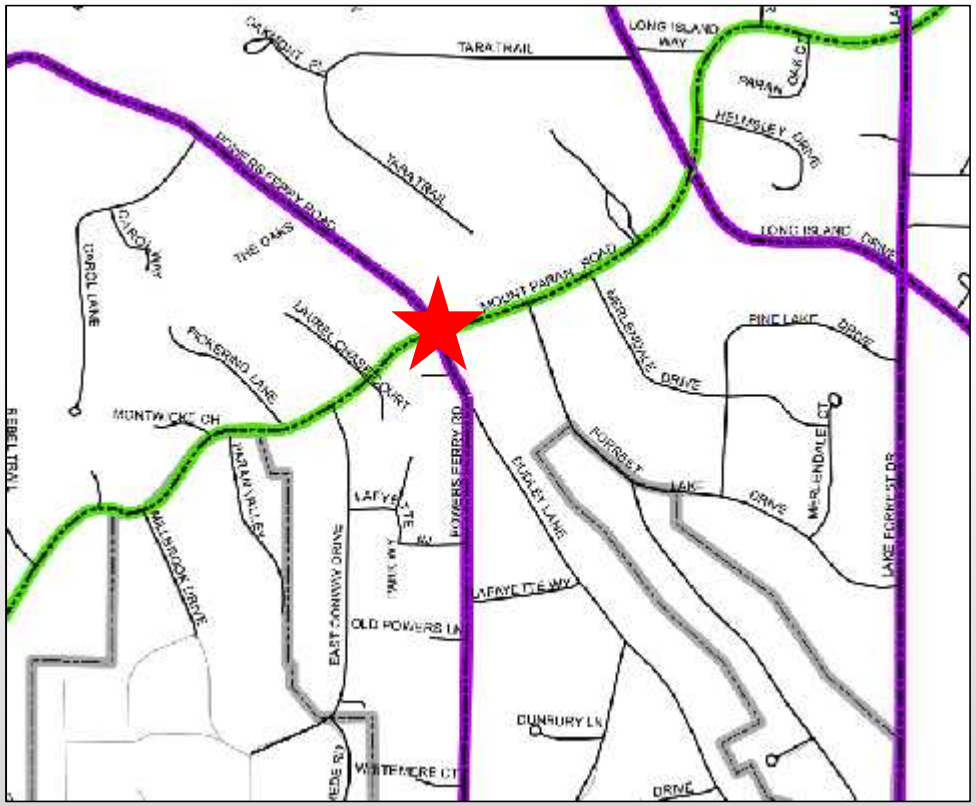
Mt. Paran Road / Powers Ferry Road Intersection Concepts (Project T-7149)

- Functional Classifications:
  - Mount Paran Rd = Minor Arterial
  - Powers Ferry Rd = Major Collector



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Mt. Paran Road / Powers Ferry Road Intersection Concepts (Project T-7149)

- Currently a four-way stop controlled intersection
- Intersection project has been identified in the Intersection Improvement Program (IIP) for over 3 years
- Intersection Concerns:
  - Operates with excessive delay and a failing level of service (LOS) in the AM and PM peak hour
  - History of side-impact, angle crashes (From 2011 to 2016, 33 vehicle crashes have occurred at the intersection)

Intersection Crash Analysis

T-7149 Mount Paran Road @ Powers Ferry Road

Table 5: Crash Analysis

Year	Crash Type			Total Crashes
	Angle	Rear End	Sideswipe – Same Direction	
2011	3	1	0	4
2012	8	0	1	9
2013	2	1	1	4
2014	6	4	0	10
2015	5	1	0	6
Total	**24**	**7**	**2**	**33**

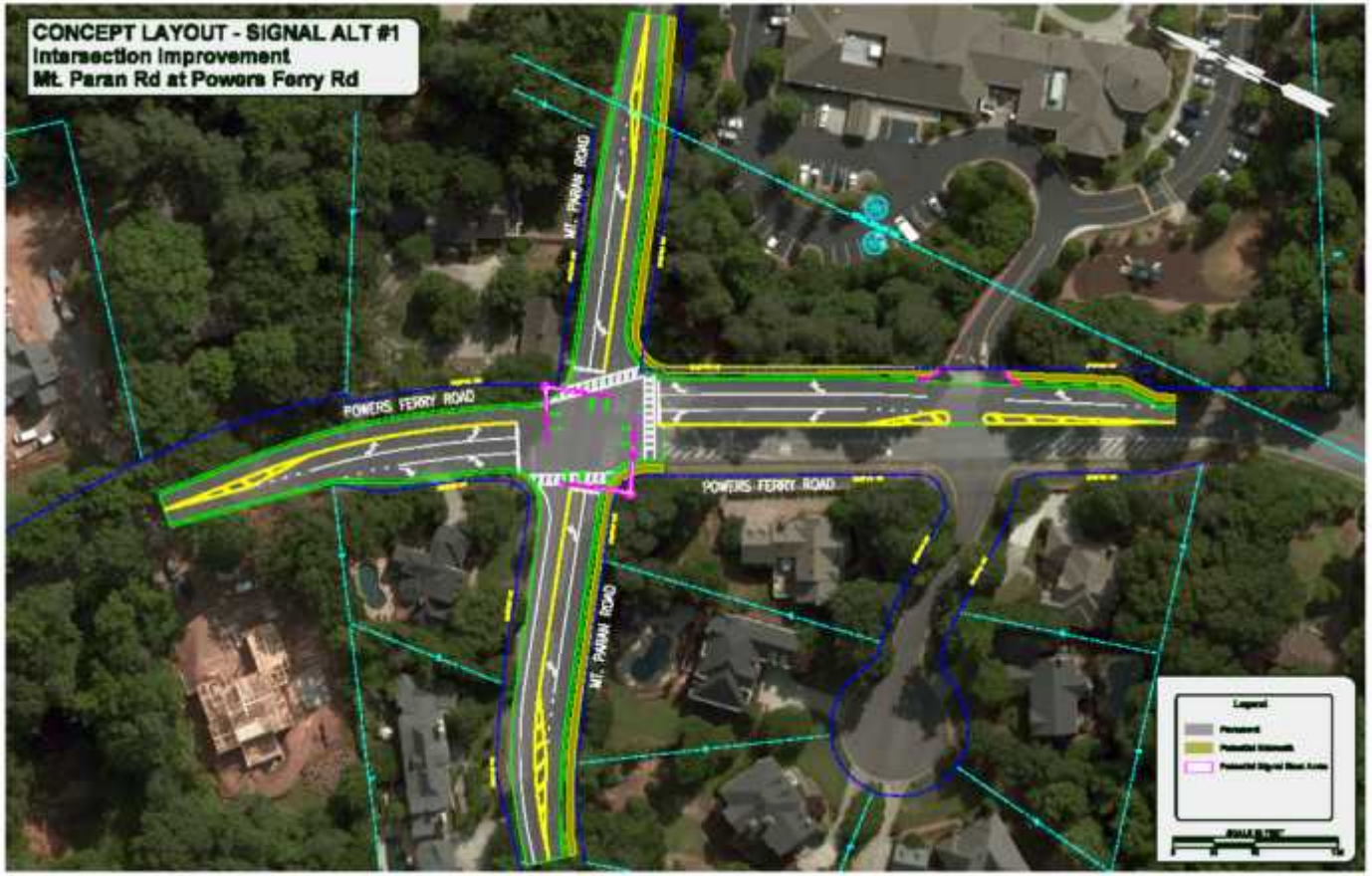
Traffic Control Concepts Compared

- **Traffic Signal**
  - Safety: potential for an angle collision is reduced
  - Operations: would significantly reduce delay and queues as compared with the no-build option
  - Requires greater right-of-way than roundabout
- **Roundabout**
  - Safety: the potential for an angle collision is eliminated
  - Operations: would significantly reduce delay and queues as compared with the no-build option
  - Less right-of-way than traffic signal
  - Preferred by public (meeting conducted January 26, 2017)

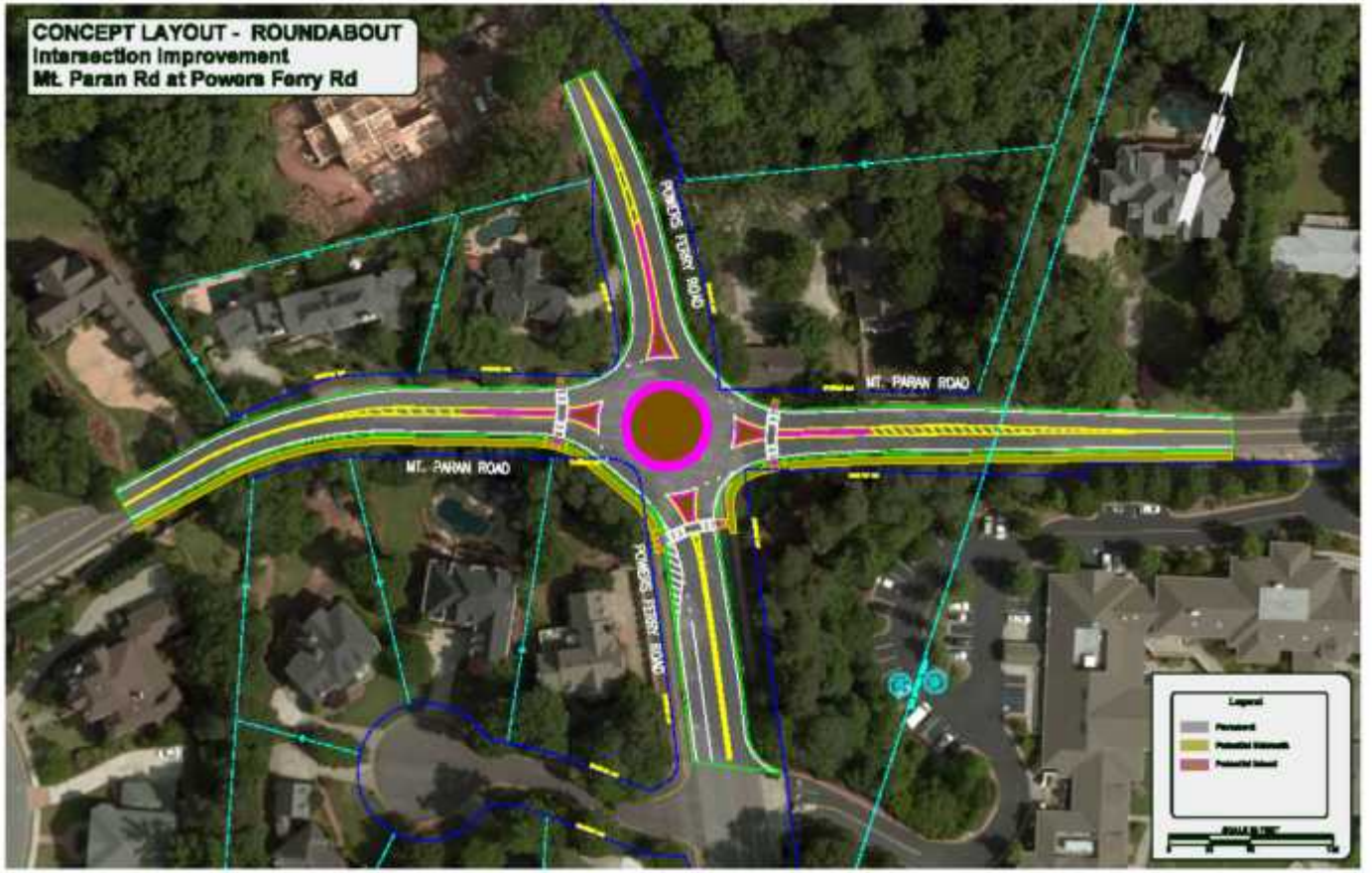
Public Open House Survey Results

Alternative	Forms/ Email	Board at Meeting	Total
Traffic Signal	0	4	4
Roundabout	15	19	34
No-Build	77	0	77
No-Build, Traffic Signal	5	4	9
No-Build, Roundabout	6	10	16
Total	**103**	**37**	**140**

Traffic Signal Concept



Roundabout Concept



Intersection Capacity Analysis

T-7149 Mount Paran Road @ Powers Ferry Road

Table 3: Peak Hour Intersection Capacity Analysis

Analysis Year	Alternative	Peak Hour	EB Approach	WB Approach	NB Approach	SB Approach	Total Intersection
Existing Year (2016)	Existing (Stop-control)	AM	LOS F (129.7)	LOS F (160.1)	LOS E (38.7)	LOS F (97.7)	LOS F (105.8)
		PM	LOS F (62.2)	LOS F (242.2)	LOS F (87.6)	LOS E (45.8)	LOS F (125.9)
Open Year (2019)	No-Build (Stop-control)	AM	LOS F (147.9)	LOS F (176.2)	LOS E (41.5)	LOS F (108.5)	LOS F (114.4)
		PM	LOS F (70.5)	LOS F (269.0)	LOS F (101.4)	LOS F (50.9)	LOS F (138.9)
	Signal Alt 1	AM	LOS A (8.5)	LOS A (8.1)	LOS A (8.3)	LOS A (10.0)	LOS A (8.5)
		PM	LOS A (9.9)	LOS B (11.7)	LOS B (13.5)	LOS B (12.4)	LOS B (12.0)
	Signal Alt 2	AM	LOS A (9.8)	LOS A (9.8)	LOS B (11.1)	LOS B (12.4)	LOS B (10.7)
		PM	LOS A (8.5)	LOS B (10.1)	LOS B (14.1)	LOS B (12.7)	LOS B (11.4)
	Roundabout (SIDRA)	AM	LOS B (18.5)	LOS B (10.7)	LOS B (17.5)	LOS B (13.5)	LOS B (15.1)
		PM	LOS A (8.1)	LOS B (18.0)	LOS B (14.7)	LOS B (12.6)	LOS B (14.0)

Estimated Project Costs

Roundabout:

Cost Summary Incl. Contingency		per mile	Yr. of Exp.	Inflated Cost	Total Program Cost
Preliminary Engineering	$160,339	$ 1,002,118	2016	$ 160,339	$160,339
Reimbursable Utility	$160,339	$ 1,002,118	2016	$ 160,339	$160,339
Right-of-Way	$798,000	$ 4,987,500	2016	$ 798,000	$798,000
Construction	$1,068,926	$ 6,680,789	2016	$ 1,068,926	$1,068,926
Total	$2,187,604	$ 13,672,525	Total	$2,187,604	$2,187,604

Alternate 1: No left turn pocket traveling south from intersection into school

Cost Summary Incl. Contingency		per mile	Yr. of Exp.	Inflated Cost	Total Program Cost
Preliminary Engineering	$115,452	$ 962,097	2016	$ 115,452	$115,452
Reimbursable Utility	$115,452	$ 962,097	2016	$ 115,452	$115,452
Right-of-Way	$834,000	$ 6,950,000	2016	$ 834,000	$834,000
Construction	$769,678	$ 6,413,982	2016	$ 769,678	$769,678
Total	$1,834,581	$ 15,288,176	Total	$1,834,581	$1,834,581

Alternate 2: With left turn pocket into school

Cost Summary Incl. Contingency		per mile	Yr. of Exp.	Inflated Cost	Total Program Cost
Preliminary Engineering	$123,571	$ 1,029,760	2016	$ 123,571	$123,571
Reimbursable Utility	$123,571	$ 1,029,760	2016	$ 123,571	$123,571
Right-of-Way	$834,000	$ 6,950,000	2016	$ 834,000	$834,000
Construction	$823,808	$ 6,865,064	2016	$ 823,808	$823,808
Total	$1,904,950	$ 15,874,583	Total	$1,904,950	$1,904,950

Mt. Paran Road / Powers Ferry Road Intersection Concepts (Project T-7149)

Summary

- Mount Paran Road is classified as a Minor arterial and Powers Ferry is a Major Collector
- Intersection project has been identified in the Intersection Improvement Program (IIP) for over 3 years
- Intersection operates with excessive delay for motorists and a failing level of service (LOS) in the AM and PM peak hour
- History of side-impact, angle crashes (From 2009 to 2016, 24 of 39 vehicle crashes at this intersection were angle collisions)
- Traffic Signal
  - Safety: potential for an angle collision is reduced
  - Operations: would significantly reduce delay and queues as compared with the no-build option
  - Requires greater right-of-way
- Roundabout
  - Safety: the potential for an angle collision is eliminated
  - Operations: would significantly reduce delay and queues as compared with the no-build option
  - Less right-of-way
  - Preferred by public (meeting conducted January 26, 2017)

Recommendation

- Based on the engineering analysis and after seeking public input, staff recommends a roundabout as the best alternative for addressing traffic congestion and safety at the intersection